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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,509	06/26/2003	John H. Brennan	SP03-072	5215

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CORNING INCORPORATED
SP-TI-3-1
CORNING, NY 14831

EXAMINER

LYLES IRVING, CARMEN V

ART UNIT	PAPER NUMBER
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1731

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/606,509

Applicant(s)

BRENNAN ET AL.

Examiner

Carmen Lyles-Irving

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 4-11, 15-20, and 22-27 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-11, 15-20 and 22-27 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 recites the limitation "the inorganic raw materials." There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4-6, 8-11, 15-20, and 22-27 are rejected under 35 U.S.C. 103(a) over Beall et al (U.S. Patent No. 6,132,671) in view of Chalasani et al (U.S. Patent No. 6,080,345) and Gheorghiu (U.S. Patent No. 6,287,509).

Claim 1 has been amended to recite that following drying the green ceramic structural body is heated in a first phase in an oxidating atmosphere to a temperature and for a time to enable sequential removal of the organic compounds, such that the organic compound with the first weight loss onset temperature being of lowest value is

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substantially removed prior to the organic compound with the subsequent higher weight loss onset temperature. Beall teaches that the organic fluid, which forms at least a portion of the non-solvent component, exhibits an endotherm over the temperature range of 100-110°C, which is indicative of the drying process. To explain, this temperature range overlaps with the temperature range during which water is typically removed from the green body via drying (column 5, lines 26-31).

The evaporation of the water from the green ceramic structure can be understood or interpreted as the drying process. Beall also teaches that at least a portion of the organics in the binder system, the organic liquid can be removed by evaporation (through the drying process) prior to the actual firing process (column 5, lines 40-42; column 9, lines 31-33). If only a portion of the organic binder is removed from the green ceramic body during the drying process, then it would be obvious for the remainder of the organics to be removed as the green ceramic structural body is additionally heated, i.e., in a first phase, to burn off the remaining binder.

As the examiner discussed in the first non-final rejection, the organic with the lowest weight loss onset temperature will burn off or be removed prior to the organic with the higher weight loss onset temperature. To elaborate, sequential removal of the organic compounds will occur during the heating of the green ceramic body in the first phase. The sequential removal will occur such that the organic composition with the lower weight loss onset temperature is substantially removed prior to or before the organic composition with the higher, or next highest, weight loss onset temperature. Accordingly, claim 1 is rejected.

Regarding claim 2, Beall indicates that one of the preferred ceramic materials that is formed from inorganic raw materials upon firing is cordierite (column 7, lines 33-36). Accordingly, claim 2 is rejected.

Regarding claim 4, Beall teaches that acceptable non-solvents include light mineral oil, corn oil, a blend of light mineral oil and wax emulsion, a blend of paraffin wax in corn oil, and combinations of these (column 6, 31-36). It would be reasonable to combine oil, or an oil-based compound with a binder and a surfactant. Accordingly, claim 4 is rejected.

Regarding claims 5, 6 and 26 in order for a compound, i.e. oil, to burn off, it is inherent that the compound has a weight loss onset temperature of a lower value than its flash point or LFL (lower flammability limit). Moreover, in order for the compound, i.e. the oil, to burn off, the temperature of the ceramic body must be kept below the flash point or LFL to keep the oil from igniting. Accordingly, claims 5, 6 and 26 are rejected.

Regarding claim 8, Beall teaches that one of the preferred non-solvents is a polyalopholefin (column 6, lines 36-38). Accordingly, claim 8 is rejected.

Regarding claims 9-11, Beall teaches that a preferred binder in ceramics is cellulose ether (column 6, line 56) particularly methylcellulose, methylcellulose derivative, and combinations thereof (column 6, lines 57-59). It is inherent that if the binder is a methylcellulose or a methylcellulose derivative it would have a weight loss onset temperature of 200°C. Because the weight loss onset temperature of the binder is greater than the flash point of the oil or oil based compound, the oil will burn off or be

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removed from the ceramic body before the binder. Accordingly, claims 9 –11 are rejected.

Regarding claims 15 and 25, Gheorghiu '509 teaches that the CO₂ present in the firing atmosphere comprises at least 10% while the O₂ present in the atmosphere is less than about 10% (column 2, lines 65-67). Accordingly, claims 15 and 25 are rejected.

Regarding claim 16, it is rejected based upon the teachings of Beall and Gheorghiu '509 in claims 1 (in regards to further heating the green ceramic body to achieve a fired ceramic article), 4, 9, and 15. Accordingly, claim 16 is rejected.

Regarding claim 17, it is rejected based upon the teachings of Beall and Gheorghiu '509 as applied in claims 8 and 16. Accordingly, claim 17 is rejected.

Regarding claim 18, it is rejected based upon the teachings of Beall and Gheorghiu '509 as applied in claims 10 and 16. Accordingly, claim 18 is rejected.

Regarding claim 19, it is rejected based upon the teachings of Beall and Gheorghiu '509 as applied in claims 11 and 16. Accordingly, claim 19 is rejected.

Regarding claims 20 and 27, it is rejected based upon the teachings of Beall and Gheorghiu '509 as applied in claim 16. Additionally, Beall teaches for compositions primarily forming cordierite, firing of the body is conducted at temperatures ranging from 1300°C to 1450°C with holding times ranging from 1 to 8 hours (column 8, lines 54-57). Accordingly, claims 20 and 27 are rejected.

Regarding claim 22, in order to remove the organic compounds sequentially from the green ceramic structural body, it is obvious that that structural body be heated in the first phase at or above the first weight loss onset temperature, but below the weight loss

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onset temperature of the second and subsequent organic compound. Accordingly, claim 22 is rejected.

Regarding claim 23, as previously mentioned, to achieve sequential removal of organic compounds from the green ceramic structural body, it is obvious that the structural body be heated in the first phase to a temperature at or above the weight loss onset temperature of the first organic compound to be removed. This temperature must be maintained for a time sufficient to achieve substantial removal of the first organic. Once complete removal of the first organic has been accomplished, then the green ceramic structural body may be heated to or above the weight loss onset temperature of the second organic compound to be removed. Again, this temperature must be maintained for a time sufficient to achieve substantial removal of the second compound. This process should be continued until subsequent removal of all the organic compounds is realized. It is also obvious that the weight loss onset temperature of the first organic compound is lower than the flash point of the second and subsequent compound, otherwise sequential removal cannot be achieved. Accordingly, claim 23 is rejected.

Regarding new claim 24, same limitations are taught as in claim 1. Accordingly, claim 24 is rejected.

Response to Arguments

Applicant's arguments filed February 16, 2005 have been fully considered but they are not persuasive.

The applicant traverses the examiner's 35 U.S.C. §112, ¶2 rejections of the word "substantially" in claims 1(d), 6, 9, and 16(a). The examiner maintains these rejections are valid because the specification lacks some standard for measuring the degree intended and, therefore properly rejected as indefinite under §112, second paragraph.

Ex parte Oetiker, 23 USPQ2d 641 (Bd. PA&I. 1992).

The applicant failed to amend claim 2 to overcome the 35 U.S.C. §112, ¶2 rejection for the limitation "the inorganic raw materials." There is insufficient antecedent basis for this limitation in the claim; therefore, the rejection is maintained.

The applicant argues the combination of Beall et al in view of Chalasani et al and Gheorghiu does not render the claimed invention obvious. Beall et al in view of Chalasani et al and Gheorghiu continue to read on the claims as amended. The claims as amended teach that the organic compounds are removed from the green ceramic structural body following drying. Beall teaches that water is evaporated from the green ceramic structural body. This water evaporation is being interpreted or understood by the Examiner as the drying process referred to by the applicant in the amended claims. Beall teaches that the evaporation or the drying process can remove a portion of the organics in the binder system, specifically the organic liquid. It is obvious that if a portion of the binder is removed during drying, the remainder of the organics will be removed during the heating of the green ceramic structural body in the first phase. In other words, the remainder of the organics is removed following the drying of the structural body. For these reasons, the rejections of claims 1, 2, 4-6, 8-11, 15-20, and 22-27 are rejected.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carmen Lyles-Irving whose telephone number is (571) 272-2945. The examiner can normally be reached Monday through Friday from 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CLI
05/2/2005


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